REMARKS/ARGUMENTS

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the amendments and remarks herewith, which place the application into condition for allowance. The present amendment is being made to facilitate prosecution of the application.

I. STATUS OF THE CLAIMS AND FORMAL MATTERS

Claims 1-80 are pending in this application. Claims 2-6, 9-11, 14-15, 18-21, 23-27, 30-32, 35-36, 39-42, 44-48, 51-53, 56-57, 60-63, 65-66, and 68-80 have been withdrawn from consideration. Claims 7, 8, 16, 17, 28, 29, 37, 38, 49, 50, 58, and 59 have been canceled without prejudice or disclaimer of subject matter. Claims 22 and 67 have been amended in this response. Support for this amendment is provided throughout the Specification and claims as originally filed. Accordingly, no new matter has been added.

Changes to claims are not made for the purpose of patentability within the meaning of 35 U.S.C. §101, §102, §103, or §112. Rather, these changes are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

Applicants respectfully submit that the withdrawn claims should be reconsidered and reintroduced into the application when the independent claims from which they depend are found allowable.

II. REJECTIONS UNDER 35 U.S.C. §101

Claims 22, 33-34, and 67 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter.

Independent claims 22 and 64 have been amended, thereby obviation the §101 rejections.

III. REJECTIONS UNDER 35 U.S.C. §103(a)

Claims 1, 12, 13, 22, 33, 34, 43, 54, 55, 64, and 67 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over U.S. Patent No. 6,157,677 to Martens et al. (hereinafter "Martens") in view of U.S. Patent No. 6,885,971 to Vock et al. (hereinafter "Vock").

Independent claim 1 recites, *inter alia*:

> "An apparatus comprising …
> memory means for storing **relationship information generated by learning based on camera motion estimation information for learning expressing motion of a video camera, which is detected by a desired image signal picked up by the video camera, and camera motion information for learning expressing physical motion of the video camera, which was obtained by a sensor for detecting physical motion at the same time when the desired image signal was picked up by the video camera** …
> **wherein the desired image signal is a signal obtained for learning processing that is performed automatically by a learning section of said apparatus**." (Emphasis added)

Applicants respectfully submit that Martens and Vock, considered either alone or in combination, do not teach or suggest the above identified feature of claim 1. Specifically, neither Martens nor Vock, considered either alone or in combination, disclose or suggest an apparatus including memory means for storing relationship information generated by learning based on camera motion estimation information for learning expressing motion of a video camera, which is detected by a desired image signal picked up by the video camera, and camera motion information for learning expressing physical motion of the video camera, which was obtained by a sensor for detecting physical motion at the same time when the desired image

signal was picked up by the video camera, wherein the desired image signal is a signal obtained for learning processing that is performed automatically by a learning section of the apparatus, as recited in claim 1.

As understood by the Applicants, Martens relates to a method for coordination of motion determination over multiple frames. Specifically, Martens relates to estimating motion between one reference image and each frame in a sequence of frames, each frame consisting of multiple samples of an input signal. The method includes transforming the estimated motion fields into a motion matrix, wherein each row corresponds to one frame, and each row contains each component of motion vector for each element of the reference image.

As described in Martens, A Principal Component Analysis of the motion matrix is performed, thereby obtaining a motion score matrix consisting of a plurality of column vectors called motion score vectors and a motion loading matrix consisting of a plurality of row vectors called motion loading vectors, such that each motion score vector corresponds to one element for each frame. Each element of each motion loading vector corresponds to one element of the reference image, such that one column of said motion score matrix and one motion loading vector together constitute a factor. The number of factors is lower than or equal to the number of the frames. (Martens -- Abstract)

Now, the only portions where Martens discloses or talks about the use of a camera is in col. 4, lines 55-60, where Martens states that "The method will be explained with regards to an application for 2D images: the parameterization of motion in video coding for compression or editing control. It is also applicable for 1D data structures (time warping in sound analysis, line camera motion estimation in process control) and for 3D data structures (e.g. MRI scans of human brains)." (Emphasis added)

Accordingly, Martens discloses the parameterization of motion in video coding for compression or editing control, and line camera motion estimation in process control is disclosed as an example for 1D data structures.

The only portion where Martens discloses the use of any type of a sensor is in col. 39, lines 35-50, where Martens states that "The bilinear model parameters involved (scores, loadings and residuals) for sound may be used for digital compression of audio data. They may also be used in order to give a compact model of the sound patterns, used e.g. for post-editing of the sound, in video games, etc. They may also be used for process control and for automatic error warnings, e.g. when the vibration data come from mechanical equipment such as different vibration sensors in a car, a ship or an airplane."

Therefore, the vibration data from the vibration sensors disclosed in Martens are used to be incorporated into the bilinear model for digital compression of **audio data**. They are, in fact, used in order to give a compact model of the **sound patterns**.

Therefore, it is evasive as to the relation between the vibration sensors discussed in col. 39, lines 35-50 of Martens and the camera disclosed in col. 4, lines 55-60, except for digital compression of audio data or to give a compact model of the sound patterns.

Martens therefore fails to teach or suggest an apparatus including memory means for storing relationship information generated by learning based on camera motion estimation information for learning expressing motion of a video camera, which is detected by a desired image signal picked up by the video camera, and camera motion information for learning expressing physical motion of the video camera, which was obtained by a sensor for detecting physical motion at the same time when the desired image signal was picked up by the video

camera, wherein the desired image signal is a signal obtained for learning processing that is performed automatically by a learning section of the apparatus, as recited in claim 1.

As understood by the Applicants, Vock relates to a system that detects the loft time, speed, power and/or drop distance of a vehicle, such as a sporting vehicle, during activities of moving and jumping. A loft sensor detects when the vehicle leaves the ground and when the vehicle returns to the ground. A controller subsystem converts the sensed information to determine a loft time. A display shows the recorded loft time to a user of the system. In addition, a speed sensor can detect the vehicle's speed for selective display to the user. A power sensing section informs the user of expended energy, which can be compared to other users. A drop distance sensing unit informs the user of the peak height of a jump, during an airtime. (Vock -- Abstract)

The Office Action relies on Vock for teaching the desired image signal is a signal obtained for learning processing that is performed automatically by a learning section of the apparatus. However, for the reasons stated below, Vock does not provide the disclosure lacking from Martens, and therefore, the combination fails to provide a proper basis for rejection.

The Office Action states "Vock discloses that the user wears the camera inclusive video station equipment (Vock: column 26, lines 55-65), and the camera used are moving as well." (Office Action -- page 3). Applicants respectfully traverse this assertion.

The relied upon portions of Vock is reproduced herein below for discussion purposes:

> Although the base station **70** can be configured to process substantially raw data signals from units **10** (and particularly from the sensors **14**), the base station typically collects performance data directly from the sensing unit **10** for each of a plurality of users and stores all the data, tagged to the particular user, in the server **82**. The stored data can then reviewed as required. By way of example, a video station **90** can be included with the base station **70** and users, instructors or judges can review the performance data in conjunction with video data collected during the run by known video systems (or television systems).

First, the sensors 14 disclosed in Vock include speed sensors, airtime sensors, drop distance sensors, and power sensors, but **not** a camera. Vock states that "a video station 90 can be included with the base station 70 and users, instructors or judges can review the performance data in conjunction with **video data collected during the run by known video systems (or television systems)**." (Emphasis added)

Now, looking at Fig. 1B in Vock, video station 90 is merely a display device such as a TV can is used by instructors or judges to review the performance data. The video data discussed in the above identified portion of Vock is in fact video taken during the run by a **stationary** CCD camera that looks at the slope and watches skiers traverse down the slope. In this regard, see col. 19, lines 56-66, which states "In areas where the ski run is visible, the speed and trajectory of a skier may be achieved by the use of a digital imaging system, in accord with another aspect. The imaging system can thus include a CCD camera that looks at the slope and watches skiers traverse down the slope. By knowing the distances along the slope, and the fact that the camera is stationary, the distance moved is determined frame to frame, corresponding to position in time that correlates to speed."

Therefore, contrary to the contentions in the Office Action, Vock does not disclose that the user wears the camera inclusive video station equipment, and does not disclose that the camera used are moving as well.

Therefore, the combination of Martens and Vock fails to teach or suggest a camera motion prediction information generation means wherein the desired image signal is a signal obtained for learning processing that is performed automatically by a learning section of the apparatus, as recited in independent claim 1.

Applicants respectfully submit that none of the cited references, considered either alone or in combination, teach or suggest the above identified feature of claim 1.

Therefore, independent claim 1 is clearly distinguishable and therefore patentable over the combination of Martens and Vock as applied by the Examiner.

For similar reasons, claims 22, 43, 64, and 67 are also distinguishable from Martens and Vock as applied by the Examiner.

IV. DEPENDENT CLAIMS

Since the other claims are each dependent from one of the independent claims discussed above, they are also patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

CONCLUSION

In view of the foregoing amendments and remarks, it is submitted that all of the claims in this application are patentable and Applicants respectfully request early passage to issue of the present application.

Please charge any fees incurred by reason of this response to Deposit Account No. 50-0320.

Respectfully submitted,
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